

UML Buys Renewable Energy Certificates for Residence Halls

Program Supports Producers of Green Power

The University is purchasing 4,000 megawatt hours worth of renewable energy certificates annually for the next three years at a cost of \$9,000 a year, an arrangement that represents 13 percent of the institution's electrical power. This is the equivalent of the electrical energy that powers all of the University's residence halls.

In effect, the funds are a premium that the University and other companies and institutions pay to ensure that a certain percentage of their energy comes from renewable sources—in this case, electricity generated by wind turbines.

"According to the Executive Office of Environmental Affairs, UMass Lowell is the first state agency to purchase renewable energy certificates," says Energy and Utilities Manager Mark Lukitsch.

"Translated to more tangible concepts, the amount of carbon dioxide emissions reduced by this three-year purchase is equal to removing approximately 1,450 cars from the road, or



▲ Celebrating the University's purchase of renewable energy certificates are, from left, Keri Bolding of the Center for Resource Solutions, Mark Crowdis of Think Energy, UML Energy and Utilities Manager Mark Lukitsch, and Brent Alderfer of Community Energy.

planting more than 2,200 acres of trees, or the equivalent of the amount of power used by 375 homes annually."

The University buys the certificates from a supplier, Community Energy, under an arrangement with the Massachusetts Renewable Energy Purchase Program (MREP).

A percentage of the money from the purchase of certificates flows back to the renewable energy producers through suppliers such as Community Energy. The power generated by the

producers is distributed throughout the country via the national power grid.

Other Massachusetts purchasers include Amherst College, the John Merck Fund, Mt. Holyoke College, the Oak Foundation, PerkinElmer, Inc., Sasaki Associates, Inc., and Smith College.

Jan Hamin, president of the Center for Resource Solutions, one of MREP's partners, says, "With this large purchase of energy from clean renewable sources, these businesses

and institutions will contribute to cleaner air, help reduce our dependence on fossil and nuclear fuels, and advance as community and environmental leaders."

UML will use its purchase to gain membership in the Environmental Protection Agency's (EPA) Green Power Partnership, authorizing it to display the agency's Green Power Partnership seal on Residence Life literature.

—JMcD

Massachusetts CEOs Take Dim View of the Economy

Poll Shows Majority See Growth Static or Shrinking

Chief executive officers of Massachusetts businesses are generally downbeat about the current outlook for the national and state economies and are being conservative in their own business expansion plans.

This was the finding of a new statewide poll of 527 CEOs released recently by the Massachusetts Economic Assessment and Analysis Project (MEAAP) at UMass Lowell and Boston.

The poll of heads of companies with 20 or more employees showed that only 32 percent perceived the national economy as growing, and only 27 percent perceived the state economy as growing. In contrast, 65 percent perceived the national economy—and 69 percent perceived the state economy—as either staying the same or shrinking.

The poll has a margin of error of 4.5 percent.

UMass Boston Economics Prof. David Terkla, a member of the MEAAP analytical team, said, "We see these results as underscoring the overall weakness of the economic recovery right now."

Lou DiNatale, director of the Center for Civic and Economic Opinion at UMass Lowell, a sponsor of MEAAP, said, "Job growth is likely to be the main issue in the 2006 gubernatorial election and could dog (Gov. Mitt) Romney on the presidential trail."

The bi-annual poll of CEOs is the largest survey of its kind in Massachusetts. Full results of the poll can be found at www.masseconomy.org.

MEAAP was established by the Legislature in 2003 to inform policy makers, the media and the public about economic trends in Massachusetts and to track the performance of economic stimulus programs enacted in Massachusetts.

Provost Creates Task Force on Campus Safety

Initiative Is One of Several Regarding UML Security

As one of a number of steps initiated to enhance the wellbeing of all members of the UMass Lowell community, Provost John Wooding has created a nine-member Task Force on Campus Safety, chaired by Associate Provost Kristin Esterberg.

The task force is charged with reviewing policies and identifying strategies to ensure the security of both faculty and staff.

In addition to Esterberg, the members are Sheila Riley Callahan, executive director of Academic Services; Noel Cartwright, director of the Counseling Center; Psychology Prof.

Nina Coppens; Police Chief Brian Pray; Dean of Students Larry Siegel; Vice Chancellor Jeff Thompson; Rhoda Trietsch, associate director of the Counseling Center; and Greg Wilder, director of Residence Services.

In January, the Human Resources Office and University Police sponsored a seminar, titled Preventing Violence in the Workplace, for members of the faculty and staff. Kristin Esterberg introduced the Alumni Hall event, which included presentations and discussions led by Hamish Blackman of the Wellness Corp., Chief

Pray and Cartwright. The Wellness Corp. administers the University's Employee Assistance Program.



▲ Police Chief Brian Pray, left, and Hamish Blackman, center, of the Wellness Corp. were two of the presenters at the Preventing Violence in the Workplace seminar held last month in Alumni Hall. With them is Jack Giarusso, director of Human Services, one of the seminar sponsors.

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IN OTHER NEWS

The Ombuds Solve Problems— Alan Lincoln says that after five years as problem solver, the biggest question is always, "What's an ombuds?"

Good Morning, Bruce Jackson—ABC's Good morning America interviews Asst. Prof. Bruce Jackson about his genealogy research on African-Americans.

Frightening Laboratory Work—Wang School students create scary Halloween creatures in Doug Prime's Design Laboratory.

To see these and other stories, go to UMass Lowell's new online eNews Web site at www.uml.edu/enews

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Provost Creates Task Force on Campus Safety

The presenters defined workplace violence, described warning signs that fellow employees should be aware of, and urged the audience to make use of the many University resources.

A second seminar was held Feb. 10 on UML South and a third is scheduled for Thursday, Feb. 23, at 10 a.m. in Southwick 240.

In a related program, the University Police Department will be conducting a four-day, 12-hour rape defense course for female members of the UML community that will provide women with the skills and confidence to avoid and,

if necessary, confront those who would try to harm them.

Meanwhile, the police department has requested a peer review by the Loaned Executive Management Assistance Program, a consulting and technical assistance initiative of the International Association of Campus Law Enforcement Administrators.

The consultants will review department objectives, interview stakeholders—faculty, staff and students—and submit a report suggesting ways in which the department might improve its service to the community.

—JMcD

30 Websites Have New Look and Feel as Part of Redesign

The Communications and Web offices are making great progress implementing the content management system (CMS). More than 30 sites have been launched using the CMS, incorporating the new design template. New sites posted recently include:

- Campus Ministries
- Health Services
- Electrical and Computer Engineering
- UML Polls
- Honors Program
- DC Internships
- College of Engineering
- Sunrise Radio Program
- Commencement
- Nanomanufacturing Center of Excellence
- Children's Health Project

All university websites are being redesigned using a CMS product called Serena Collage, which separates content from design and enables departments to maintain their websites without using programs such as Dreamweaver and MS FrontPage. Maintainers from each department are trained by IT/Training to make content updates and changes in the CMS. For more information on the CMS and the implementation plan, visit intranet.uml.edu/it/weboffice.

Beauty Business Gets Busy Buzz UML Incubator Business Takes Off

She wanted to get some "first-year buzz."

Now she's national. At age 44 and a mother of seven, Joan Beeson Healy is changing the way the public shops for women with her growingly-popular giveBeauty gift cards. A 10-year Lowell resident, Beeson Healy came to UML with a fresh idea and a knack for knowing what women want, and with the help of the University, she's in her second year of operation and gaining momentum.

One of 11 children herself, Beeson Healy had a hard time sending gifts to her sisters all over the country. She found that if there was one gift card with which you could give access to a variety of salons, shopping would be that much easier, and women could get the services they wanted.

So she got involved with UMass Lowell's Commercial Ventures & Intellectual Property (CVIP) program. Then she pitched the idea to investors at the Harvard Business School. After beginning with many local spas and salons as part of her network, she's now teaming up with the 2,500 salon chain Aveda to offer her cards to women all over America.

As part of UMass Lowell's CVIP program, Beeson Healy gets access to a pool of hireable students, mentoring and coaching, space in the Commercial Venture Development facility, shared services, equity investment, discounts for professional services, plus the benefits of being affiliated with the University. CVIP already has a portfolio that includes businesses like Atrax Technologies, eSkill, Polnox, Storm Shield and WellCare.

Biomanufacturing Wins Another \$150,000

John Adams Innovation Institute Grant will Expand Center's Reach

Additional outside funding is fueling the biomanufacturing center at UMass Lowell, this time in the form of a \$150,000 grant from the Mass Technology Collaborative's John Adams Innovation Institute. The grant follows \$175,000 in seed funding from Chancellor William T. Hogan and University of Massachusetts President Jack Wilson, which has leveraged about \$750,000 in industry support to date.

"We are grateful to the Mass Technology Collaborative for supporting these efforts," says the project's director, Assoc. Prof. Carl Lawton. "The funding will allow us to begin what we hope will be scaled up to a statewide program. The aim is to help biotechnology firms make the leap from research and development to manufacturing operations and at capturing those jobs for Massachusetts residents."

A needs assessment of the biotechnology industry in Massachusetts shows that about 40 companies are expected to make biomanufacturing location decisions in the next three years. Lawton has a proposal before the Legislature to expand the reach of the biomanufacturing center statewide, which has received support in the economic stimulus bill. That bill is pending before a conference committee.

If approved, the legislation could provide \$25 to \$35 million for biomanufacturing facilities at UMass Lowell and UMass Dartmouth. At Lowell, an advanced manufacturing building would be partly dedicated to the Center's needs, and, at Dartmouth, a \$10-15 million large-scale bioprocessing facility would be built.

With such support, it is expected that 10 new manufacturing plants and 8,000 jobs would be generated within 10 years.

Under the Innovation Institute grant, UMass Lowell will lead a collaborative effort to establish two pilot programs. The biomanufacturing center's team, led by Lawton, will apply state-of-the-art technologies to a company's specific product, provide professional education courses, establish an applied research program and conduct further needs assessments.

Lawton's team also plans to establish an applied research program aimed at improving the quality, cost and productivity of large-scale biomanufacturing. Partners include UMass Dartmouth, Tufts, WPI and Nova Biomedical, a multi-national corporation headquartered in Waltham, which is a



▲ Director of the biomanufacturing center, Carl Lawton, standing at left, showcases a new 65-liter biofermenter and the students and staff who are moving the center forward: senior chemical engineering students Sara McCarthy, seated, and Victoria Tran; chemistry doctoral student, Don Vespa, seated; and chemical engineering staff engineer Kenneth Umemba.

lead contributor. Companies such as Antigenics, Cambrex, Genzyme, Invensys, Millennium and Wyeth also have pledged support for the statewide effort.

The award is the second to UMass Lowell from the Innovation Institute Fund. A \$5 million award for a Nanomanufacturing Center of Excellence was granted in late 2004.

AG Tom Reilly Visits University Gubernatorial Candidate Is Briefed on Programs



Prof. Julie Chen, State Sen. Steven Panagiotakos, Reilly, State Rep. Thomas Golden, Chancellor William Hogan and U.S. Rep. Marty Meehan.

◀ Attorney General Thomas Reilly, a Democratic candidate for governor, recently was briefed on the University's nanotechnology, biotechnology and green chemistry programs. Shown touring some of the facilities are, from left, Mechanical Engineering

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Literature and Nanotechnology: Linking Science and the Humanities

Science Fiction Writers Imagine What Nano Will Mean

What are the social and moral implications of using nanotechnology to tinker with genetics and extend human life indefinitely? What chaos might ensue if nano-machines began running amuck in ways far removed from those intended by their inventors? In what ways might nanotechnology impact human life in the next century? These are some of the questions with which contemporary writers of science fiction grapple.

The scenarios above are explored in novels by James Halperin ("The First Immortal") and Michael Crichton ("Prey"), respectively. Both books are part of the literature and nanoscience course module developed by Todd Avery, assistant professor of English, with a seed grant from the Center for High-Rate Nanomanufacturing.

"We have always told stories that help us make sense of the world," says Avery. "Most of us are not aware of how science and technology are impacting our daily lives. We don't take time to reflect on the implications. Writers do this for us, imagining characters we can identify with asking, 'What if...'"

The nano module is part of Avery's undergraduate English course, *Monsters, Apes and Nightmares*, which examines such fiction as Mary Shelley's "Frankenstein," Robert Louis Stevenson's "Dr. Jekyll and Mr. Hyde," and H.G. Wells's "The Island of Dr. Moreau."

"There is quite a lot of literature exploring nanoscience, nanotechnology and nanomanufacturing," Avery says. "Some of it is accurate, some is wildly inaccurate and some is alarmist."

He characterizes Halperin's novel as pro-nano, while Crichton's book exemplifies the majority of literature about nano by being a cautionary tale.

The literature/science connection comes naturally to Avery, who began his undergraduate career as a mechanical engineering major. After switching into English and philosophy, he wrote his thesis on the science behind Mary Shelley's novel, "Frankenstein." He has explored other connections between literature, ethics, and technology, and is publishing a book this year titled

"Radio Modernism: Literature, Ethics, and the BBC, 1922-1938."

Avery hopes to turn the literature and nanoscience module into a one-semester course in the near future. He is working on a book of literary and cultural criticism called "Nanoscience and Literature: Across the Two Cultures."

"The 'two cultures' are scientific and humanistic inquiry," explains Avery.

"Fundamental science and technology developments are not exclusively science and technology phenomena. They influence how we live in the world."

Humanities subjects are relevant to emerging science and technology, Avery maintains.

"What literary critics might bring to the discussion about nano is a particular understanding of human action and human nature as, in part, narrative phenomena; we live our lives, our lives are shaped, by the stories we tell about who we are, whence we've come, and where we're going, as individuals and as a species," he says. "The value of teaching both scientific and humanistic inquiry to students—and of teaching both kinds of inquiry in the same classroom—is that students can develop the intellectual flexibility to think about science and technology across and between disciplines."



▲ Asst. Prof. of English Todd Avery

Heines Develops On-Line Teaching Evaluation

Professor Receives Peer Praise

Prof. Jesse Heines of computer science has developed a new method for on-line teaching evaluations that offers significant advantages over conventional assessment methods—so much so, that it has drawn written praise from colleagues. The new on-line system allows for customization of the questions; improved quality and depth of student responses; and improved compilation and analysis of responses. Plastics Engineering Prof. David Kazmer wrote, "Jesse's commitment and professionalism should be recognized since the development of such a system is quite an undertaking from both a technological and human perspective."

Staff and Faculty Enjoy Riverhawk Hockey Action

Staff, faculty, friends and family enjoyed exciting Division I hockey action when the Riverhawks took on the No. 1 team in the country, Boston College, on Saturday, Feb. 28. Despite a 4-3 loss in overtime, the Riverhawks treated their fans to a great hockey game.



▲ Celine Beaudry of Media Services cheers on the Riverhawks with Ryan Kerrigan, her son Adam and Cameron Ripa.



▲ Allison Tait, left, and Abigail Sherburne, daughter of Director of Special Events Rick Sherburne, enjoy Riverhawks hockey action against Boston College.



▲ Dane Netherton, associate director for Institutional and Donor Analysis, watches the game with his son Turner.

Yanco Wins CAREER Award for Human-Robot Research

Professor Seeks to Improve Autonomy

Holly Yanco, assistant professor of computer science, has been awarded a five-year \$420,000 CAREER grant by the National Science Foundation for her proposal on "Interacting With Autonomy." CAREER is NSF's Faculty Early Career Development Program.

Yanco directs the Computer Science Robotics Lab and teaches undergraduate and graduate courses on programming languages and robotics. In her research, she will explore methods for improving human-robot interaction for urban search and rescue robots and for robotic wheelchairs.

"In previous research, we've identified several problems in the ways human operators and robots interact," says Yanco. "For example, the robot may be acting autonomously at a distance or controlled by a human and needs to change mode of operation. We are working on developing sliding scale autonomy, so that the robot or the operator can decide to take a little more or less control, depending on the situation."

A related problem is tracking and summarizing past actions: "Let's say the robot gets stuck. Can we create a brief, yet complete, account of how the robot got to this spot?"

Lastly, the research will focus on robot interactions with bystanders, in which people are confused when the robot acts in an unexpected fashion.

"The first three years of research are for designing the systems," says Yanco. "In the final two years, we'll combine the autonomous and directed functions in a third application—a robot assistant for the elderly or disabled."

Yanco sees many benefits to society in the improvement of human-robot interaction, particularly in limited bandwidth applications such as assistive robotics (limited by the user's abilities) and urban search and rescue (limited by overuse of radio frequencies during disasters). Better design of human-machine systems will improve decision making in situations where safety is critical and in non-robotic systems, such as life support systems in space.

The grant includes plans to develop a new course, *Interacting with Autonomous Systems*, as well as integration into existing course materials and outreach activities in middle and high schools.

Yanco has received four grants from NSF in the past year.



▲ Asst. Prof. Holly Yanco

Construction of the Campus's First Parking Garage is Underway

Steel and Concrete Structure Will Hold 630 Vehicles

The bad news: there has been a lot of noise coming from the site of the former Bourgeois Hall parking lot on UML East.

The good news: construction is underway on the campus's first parking garage, a four-level, 630-space concrete and steel structure. Pile driving, the source of the recent racket, should be replaced by the quieter phase of pouring concrete by the end of February.

The \$13 million project broke ground in late December and is scheduled for completion in late fall 2006, depending on availability of building materials. The garage will primarily serve the needs of faculty, staff and students living and working on UML East.

About a third of the 230 parking spaces lost to construction have already been replaced by new spaces on the Lawrence Mills property. An adjacent 85 spaces are scheduled to be available soon. The balance of the lost



▲ The view from the roof of Fox Hall shows construction progress on the UML East parking garage.

parking spaces has been offset by the conversion of some resident-and-com-muter parking areas on UML East to resident-only lots.

Following completion of the UML East facility, design is expected to begin on a second, 900-space garage to be located on part of the Riverside Lot on UML North.

Hector Valdes, project manager in the Office of Facilities, is overseeing construction of the UML East garage.

I2V Targets Tech Entrepreneurs

Workshop Offers "How To" On Commercializing Ideas

Have you ever thought of taking your "big idea" to the next level but aren't sure where to begin? If so, Invention 2 Venture (I2V) is just the workshop for you.

I2V is a series of nationwide conferences and workshops geared towards want-to-be technology entrepreneurs. The all-day workshop includes a number of guest speakers who will cover everything from moving ideas forward, creating a winning business plan, and finding the venture capital to make it all work.

This year, UML is hosting I2V on Friday, Feb. 24, with an emphasis on clean and renewable energy technologies.

Paul Wormser, UML's Commercial Venture Development entrepreneur-in-residence, is hoping to attract a broad range of participants from the entire UML community and beyond.

According to Wormser, this event not only helps you learn what it takes to transform a great idea into a new venture but also allows you to meet with the movers and shakers from the venture capital world and regional clean energy companies.

"You'll learn what investors and partners want to see in a business plan, how to form an "A" team, how to identify the best opportunities and the importance of early revenue," Wormser says. "You'll also be inspired by Steven Strong, one of Time Magazine's 'heroes of the planet.'"



▲ Paul Wormser

Highlights of the agenda include discussions on idea validation and opportunity assessment, marketing and sales for early stage companies, and intellectual property issues. There will also be a keynote speech by Steven Strong of Solar Design Associates on "Clean Energy: The Global Imperative."

The event is a co-production of UML and the National Inventors and Innovators Alliance in partnership with the Massachusetts Technology Transfer Center, the Merrimack Valley Venture Forum and the Massachusetts Institute of Technology's 2006 Ignite Clean Energy business plan competition.

For more information or to register on-line, visit: www.invention2venture.org/events/UMassL.

UML Study Looks at "Green" Cities Across the Country

Researchers ID Best Practices To Assist City of Lowell

UML researchers have come up with 10 green building program recommendations for the City of Lowell following a 21-community study. The recommendations include the importance of developing building standards, as well as education and outreach.

"Green building" refers to design and construction strategies that significantly reduce or eliminate the negative

environment impacts of a building while providing healthy space for its occupants. The research was done in partnership with the City of Lowell and other community stakeholders and is the first step in a broader analysis of what a green building program would be like in Lowell.

UML collected data from 21 communities that utilize the green building model on a municipal level. Researchers examined programs in each city and compiled information on best practices, obstacles, education and outreach. The research was supported by a \$25,000 grant by the Theodore

Edson Parker Foundation.

"This is the first national study I am aware of that examines over 20 municipal green building programs," says David Turcotte, project director, Lowell Green Building Initiative at UML's Center for Family, Work and Community. "In addition, this study is a concrete example of how research—in the form of a community and university partnership—can contribute to the sustainable social, environmental and economic development of the region."

The impetus for the project came from a meeting between UML administrators and Lowell city planners. The University's goal was to conduct research that would be useful to the

planning department in making Lowell a sustainable urban setting.

"The City's Division of Planning and Development welcomes UML's involvement in helping to identify techniques and programs that might be effectively employed to increase the use of green building techniques in Lowell's development community," says Adam Baacke, deputy director of Economic & Community Development for the City of Lowell's Division of Planning and Development.

In addition to this study, research that is specific to Lowell is currently being conducted. There is also a community forum planned for the spring.



▲ David Turcotte, left, project director of the Lowell Green Building Initiative at UML's Center for Family, Work and Community and Julie Villareal, program manager.



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